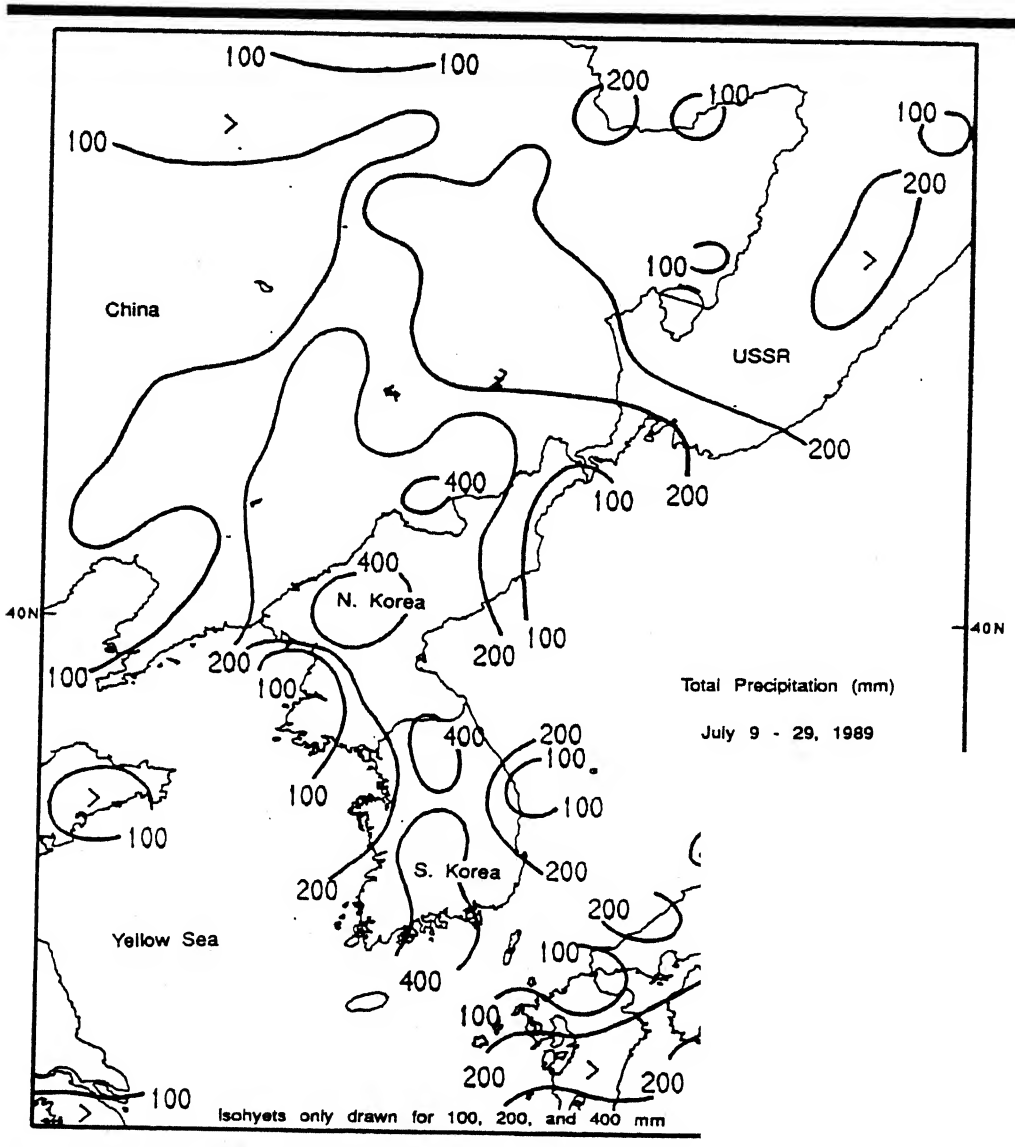
CLIMATE ANALYSIS CENTER

WEEKLY CLIMATE BULLETIN

No. 89/30 **Washington, DC** **July 29, 1989**



DURING THE PAST FEW WEEKS, TORRENTIAL RAINS (MORE THAN 500 MM) CAUSED SEVERE FLOODING IN PARTS OF NORTHERN AND SOUTHERN KOREA, SOUTHEASTERN SIBERIA, SOUTHERN JAPAN, AND MANCHURIA. FARTHER SOUTH, SECTIONS OF SOUTHERN CHINA WERE

UNITED STATES DEPAR
NATIONAL OCEANIC AND ATM
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WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- U.S. cooling degree days (summer) or heating degree days (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every three months).
- Global three-month temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Climate Analysis Center via the Global Telecommunications System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.

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GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF JULY 29, 1989

1. Interior of the Northwestern United States:

HEAT WAVE OCCURS.

Temperatures averaged up to 4°C above normal as the very hot weather aggravated the potential for forest fires in the northern Intermountain West (see U.S. Weekly Climate Highlights) [2 weeks].

2. North Central United States:

LONG-TERM DEFICITS CONTINUE.

Some stations received as much as 62 mm of rain; however, long-term deficits persisted (see U.S. Weekly Climate Highlights) [19 weeks].

3. Northeastern United States:

WETNESS DIMINISHES.

Less than 11 mm of rain fell at most stations as drier weather replaced the unusually wet regime (see U.S. Weekly Climate Highlights) [Ending at 11 weeks].

4. Gulf Coast:

SCATTERED SHOWERS OBSERVED.

A few heavy showers fell at some stations with up to 94 mm of rain reported; however, most locations had little or no precipitation (see U.S. Weekly Climate Highlights) [Ended at 9 weeks].

5. Western Europe:

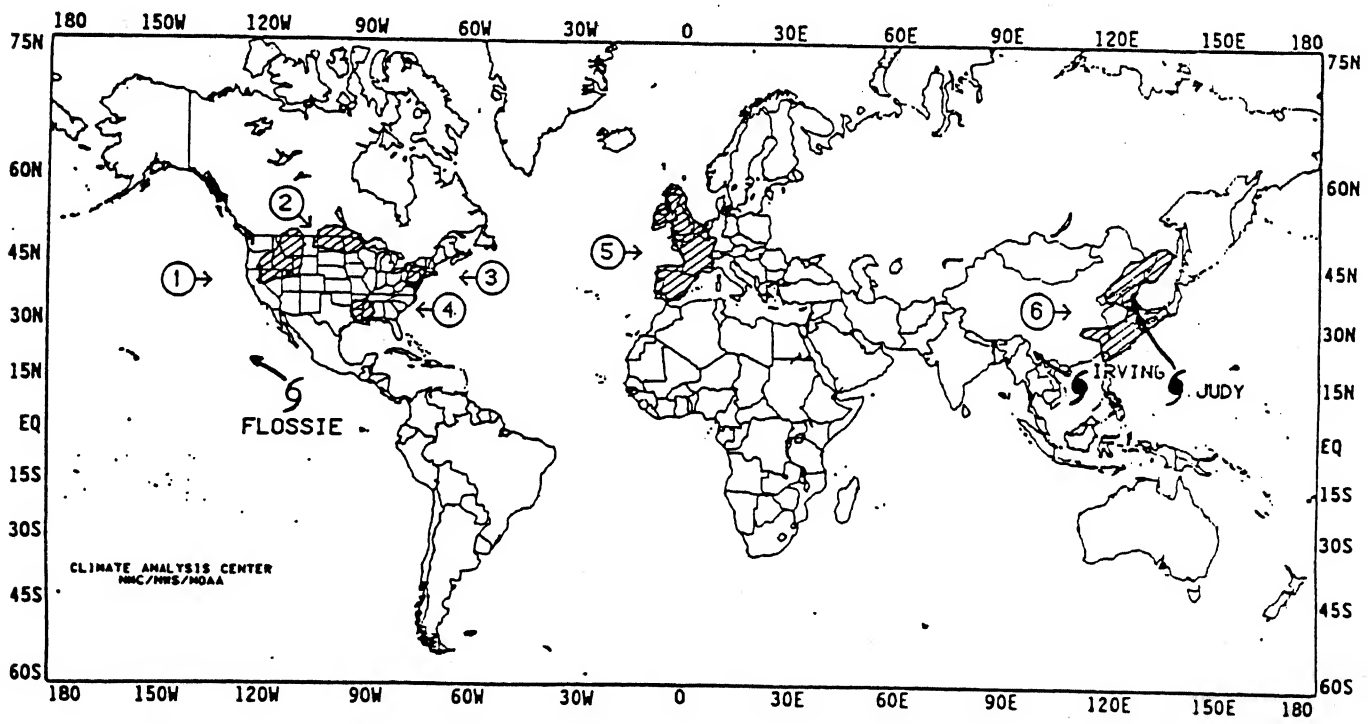
HOT WEATHER REMAINS.

Very high temperatures, approaching 5°C above normal, persisted across much of western Europe from the British Isles and the Iberian Peninsula eastward to France and Belgium [3 weeks].

6. Eastern Asia:

HEAVY RAINS REPORTED.

Torrential rains, totaling nearly 300 mm in parts of Taiwan, Japan, China, and extreme southeastern Siberia and almost 400 mm in Korea, caused flooding and some landslides (see Special Climate Summary) [Episodic Events].



EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.

MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF JULY 23 THROUGH JULY 29, 1989.

A trend towards lower temperatures and increased rainfall in the central and southern Rockies continued for the second consecutive week. Near to below normal temperatures were observed throughout the region, while a pair of low pressure systems, combined with normal monsoonal convection, triggered numerous showers and thunderstorms that dumped moderate to heavy precipitation on sections of Arizona, New Mexico, Colorado, and Utah. Many locations reported their first significant precipitation since last winter. Farther east, a weak, warm high pressure center provided a brief respite from the cool, wet conditions that have generally prevailed over much of the South and East since May. During the latter half of the week, however, a series of weak frontal systems moved southeastward out of Canada, touching off scattered showers and thunderstorms across the eastern half of the nation. Isolated downpours caused localized flash flooding in the central Plains, the mid-Atlantic, and along the western half of the Gulf Coast. Spotty, heavy rains fell on parts of the abnormally dry western Corn Belt and northern Great Plains. While a few areas gained some short-term moisture benefits, the rainfall was generally insufficient to provide any substantial widespread relief from long-term dryness. In Hawaii, the western islands received heavy precipitation early in the week from the remnants of Tropical Storm Dalilia, but seasonable conditions dominated the state throughout the remainder of the week. Light to moderate precipitation continued in most of Alaska, further diminishing the wildfire potential.

The scattered nature of last week's precipitation in the eastern half of the nation was evident from the River Forecast Centers' rainfall reports. Most of the area received between one-half and two inches while a few locations measured between two inches. The largest area of heavy rainfall he western mid-Atlantic and from the ıachians southwestward to the southern (see Table 1). Several stations in the latter region reported three to five inches, with a maximum amount of 9 inches in south-central Alabama. In contrast, only light rain fell in northern New England, along the southern two-thirds of the Atlantic Coast, in the Tennessee Valley, and across the western Corn Belt. To the west, moderate to heavy rain fell for the first time in the past five months across portions of the central and southern Rockies. The heaviest rainfall was observed in central Colorado, east-central Arizona, isolated parts of Utah, and north-central New Mexico. One to three inches of rain generally fell in these areas, although a few locations in eastern Arizona reported more than 7 inches. The remainder of the western U.S., the northern Rockies, and most of the High Plains experienced little or no precipitation.

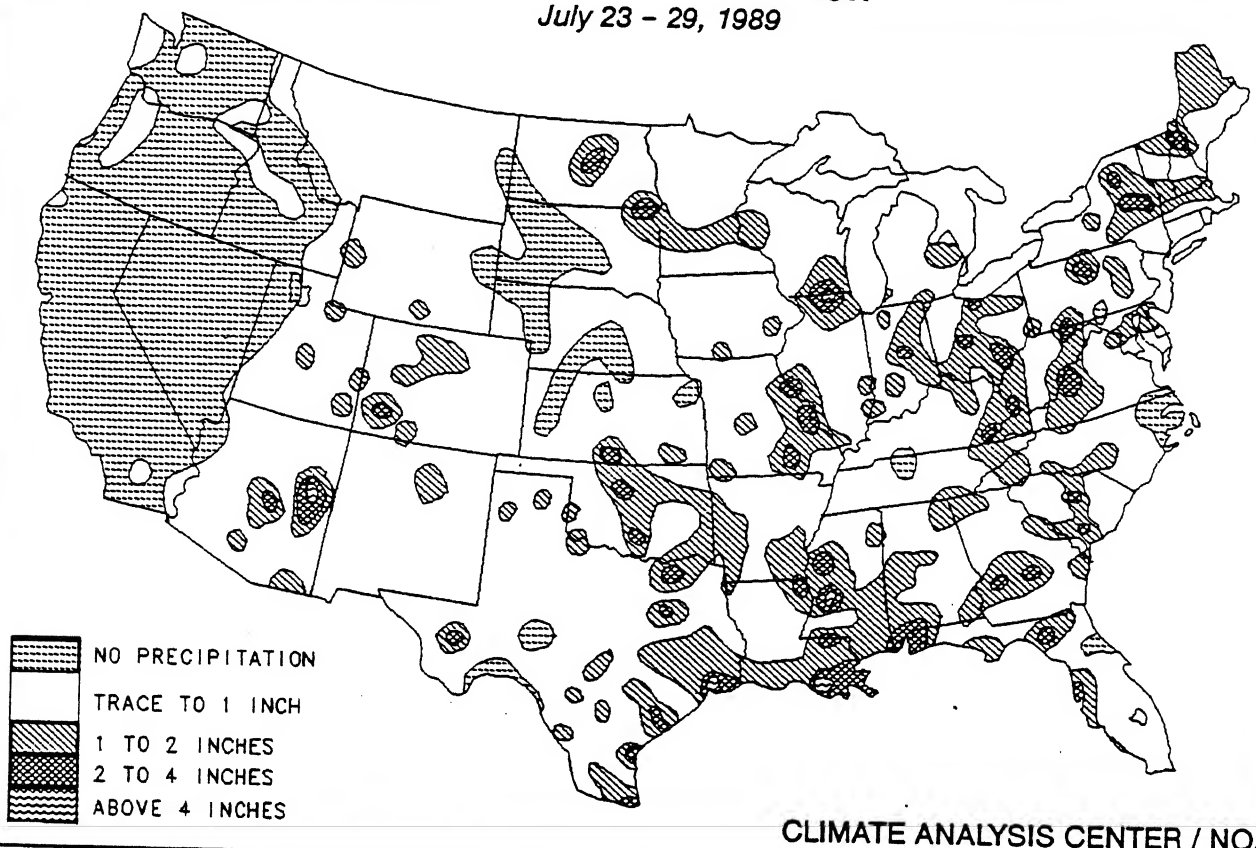
After weeks of scorching heat, near to below normal temperatures were finally recorded in the Southwest. The eastern portions were much below normal, as were most of the southern and central Plains. The greatest negative departures (between -5°F and -9°F) occurred from Oklahoma and northern Texas westward into New Mexico (see Table 3). Elsewhere, slightly cooler than normal conditions occurred in the Intermountain West, the southern halves of the Rockies and Plains, the lower Mississippi Valley, along the eastern Gulf Coast, and in Hawaii. In contrast, above normal temperatures dominated the northern halves of the Rockies and Plains and the northeastern quarter of the nation. The greatest positive departures were generally between +3°F and +5°F, but temperatures at some locations in the northern parts of the Great Plains, Rockies, and Intermountain West averaged more than 6°F above normal (see Table 2). Nearly a dozen daily record maximum temperatures were broken or tied at various stations throughout the region early in the week. With the exception of unusually mild weather in extreme northern Alaska, the remainder of the state observed seasonable weekly temperatures.

E 1. Selected stations with 2.00 or more inches of precipitation for the week.

STATION	TOTAL (INCHES)
PALACIOS, TX	2.69
TAMPA/MAC DILL AFB, FL	2.48
MCCOMB, MS	2.38
MT. WASHINGTON, NH	2.22
KEY WEST NAS, FL	2.21
BROWNSVILLE, TX	2.12
PORT ARTHUR, TX	2.02
YAKUTAT, AK	2.02
MOBILE, AL	2.01

OBSERVED PRECIPITATION

July 23 - 29, 1989



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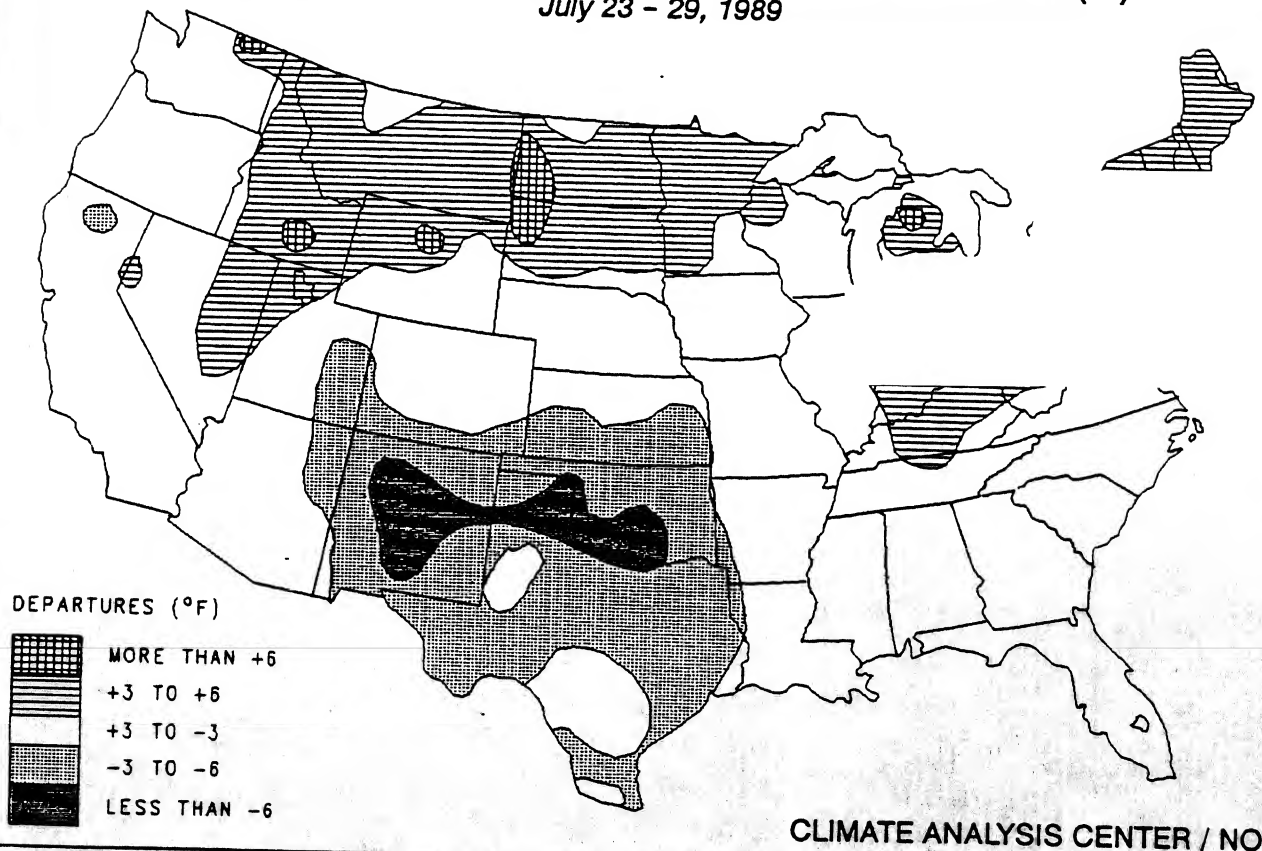
DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

July 23 - 29, 1989



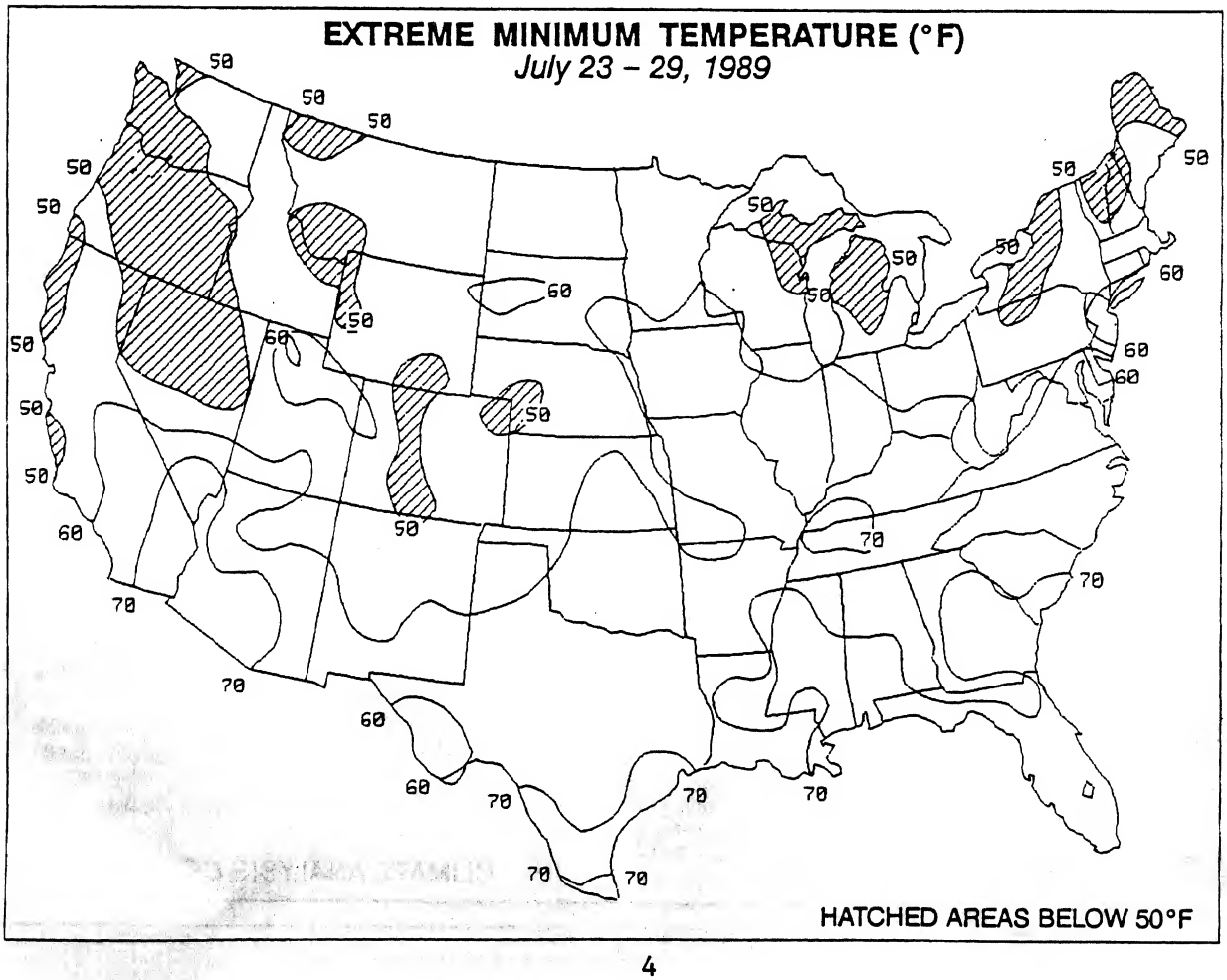
CLIMATE ANALYSIS CENTER / NOAA

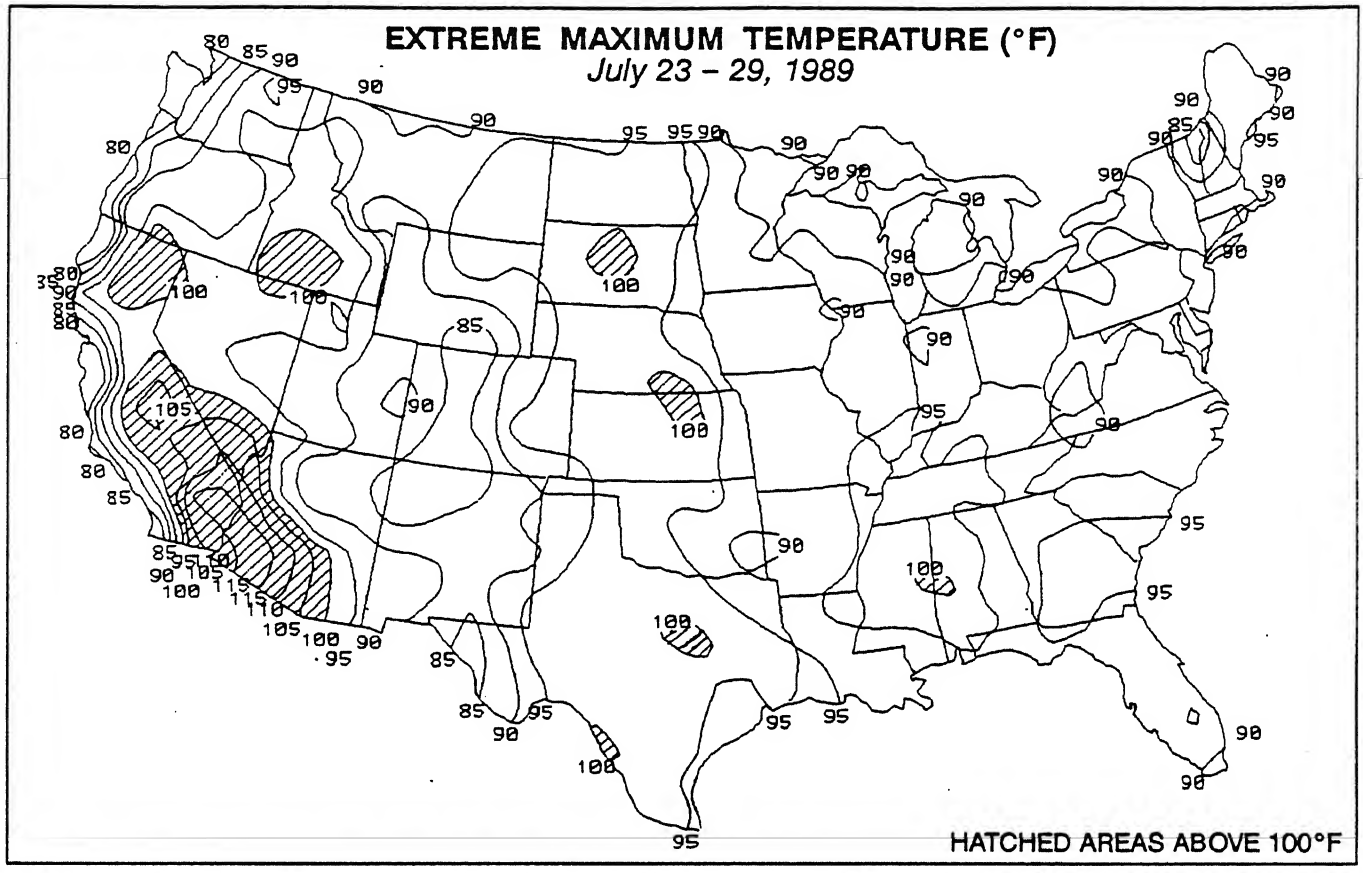
TABLE 2. Selected stations with temperatures averaging 4.5°F or more ABOVE normal for the week.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
BARROW, AK	+8.4	48.0	SALT LAKE CITY, UT	+5.0	83.7
BURLEY, ID	+6.8	78.2	POCATELLO, ID	+5.0	77.3
MISSOULA, MT	+6.4	74.7	BURLINGTON, VT	+5.0	74.7
WORLAND, WY	+6.3	78.7	BANGOR, ME	+5.0	73.6
WILLISTON, ND	+5.7	76.9	FARGO, ND	+4.9	76.2
VICTORVILLE/GEORGE AFB, CA	+5.6	85.1	MASSENA, NY	+4.9	74.3
RAPID CITY, SD	+5.6	79.4	PELLSTON, MI	+4.9	70.9
DICKINSON, ND	+5.6	76.1	AUGUSTA, ME	+4.8	74.8
PORTLAND, ME	+5.6	74.5	ABERDEEN, SD	+4.7	77.6
HANCOCK/HOUGHTON CO., MI	+5.6	71.1	BISMARCK, ND	+4.7	76.0
HOUGHTON LAKE, MI	+5.5	72.8	ALPENA, MI	+4.7	71.6
SAULT STE. MARIE, MI	+5.3	69.6	KALISPELL, MT	+4.7	70.6
NEWARK, NJ	+5.2	82.5	BUTTE, MT	+4.6	68.6
PIERRE, SD	+5.2	81.2	ROCHESTER, NY	+4.5	76.1
BOISE, ID	+5.2	80.9	DULUTH, MN	+4.5	70.3

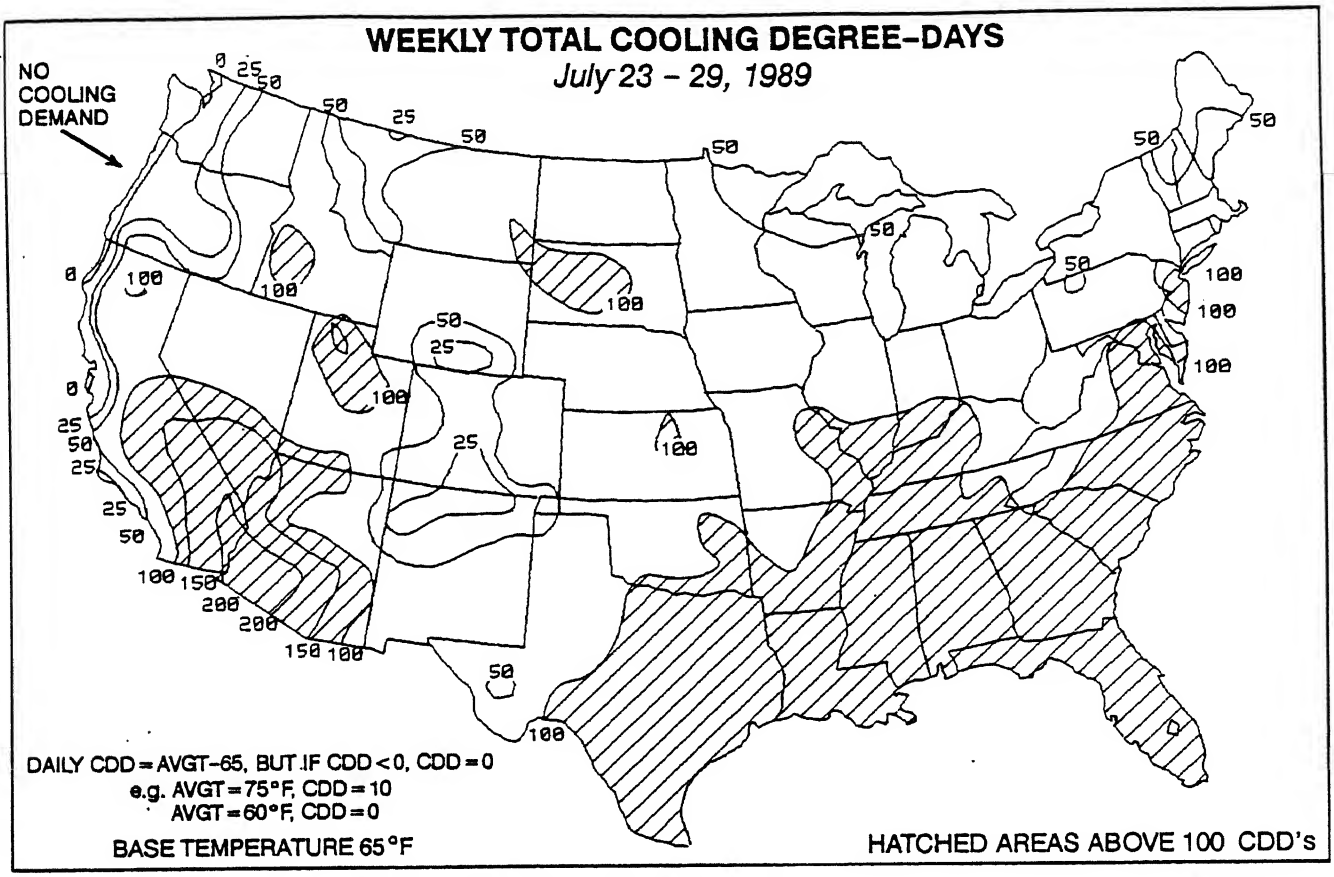
TABLE 3. Selected stations with temperatures averaging 4.0°F or more BELOW normal for the week.

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
ALBUQUERQUE, NM	-8.5	70.5	DODGE CITY, KS	-5.0	75.6
CLOVIS/CANNON AFB, NM	-6.5	71.4	PALACIOS, TX	-5.0	79.1
WICHITA FALLS, TX	-6.1	79.9	WACO, TX	-5.0	81.4
OKLAHOMA CITY, OK	-6.0	77.0	REDDING, CA	-4.9	79.2
AMARILLO, TX	-5.9	73.1	FARMINGTON, NM	-4.8	71.0
GAGE, OK	-5.7	76.3	ROSWELL, NM	-4.6	75.9
SAN ANGELO, TX	-5.7	78.5	CARLSBAD, NM	-4.5	77.9
EL PASO, TX	-5.6	76.9	ENID/VANCE AFB, OK	-4.5	78.8
DALLAS/FORT WORTH, TX	-5.6	80.5	LUFKIN, TX	-4.5	79.3
FT. SILL/HENRY POST AAF, OK	-5.5	78.3	BROWNSVILLE, TX	-4.5	79.8
TUCUMCARI, NM	-5.4	74.0	DEMING, NM	-4.4	75.4
GARDEN CITY, KS	-5.3	75.3	COLLEGE STATION, TX	-4.4	80.3
MCALESTER, OK	-5.2	78.2	HOBART, OK	-4.2	79.7
ABILENE, TX	-5.2	79.2	BETTLES, AK	-4.1	55.2

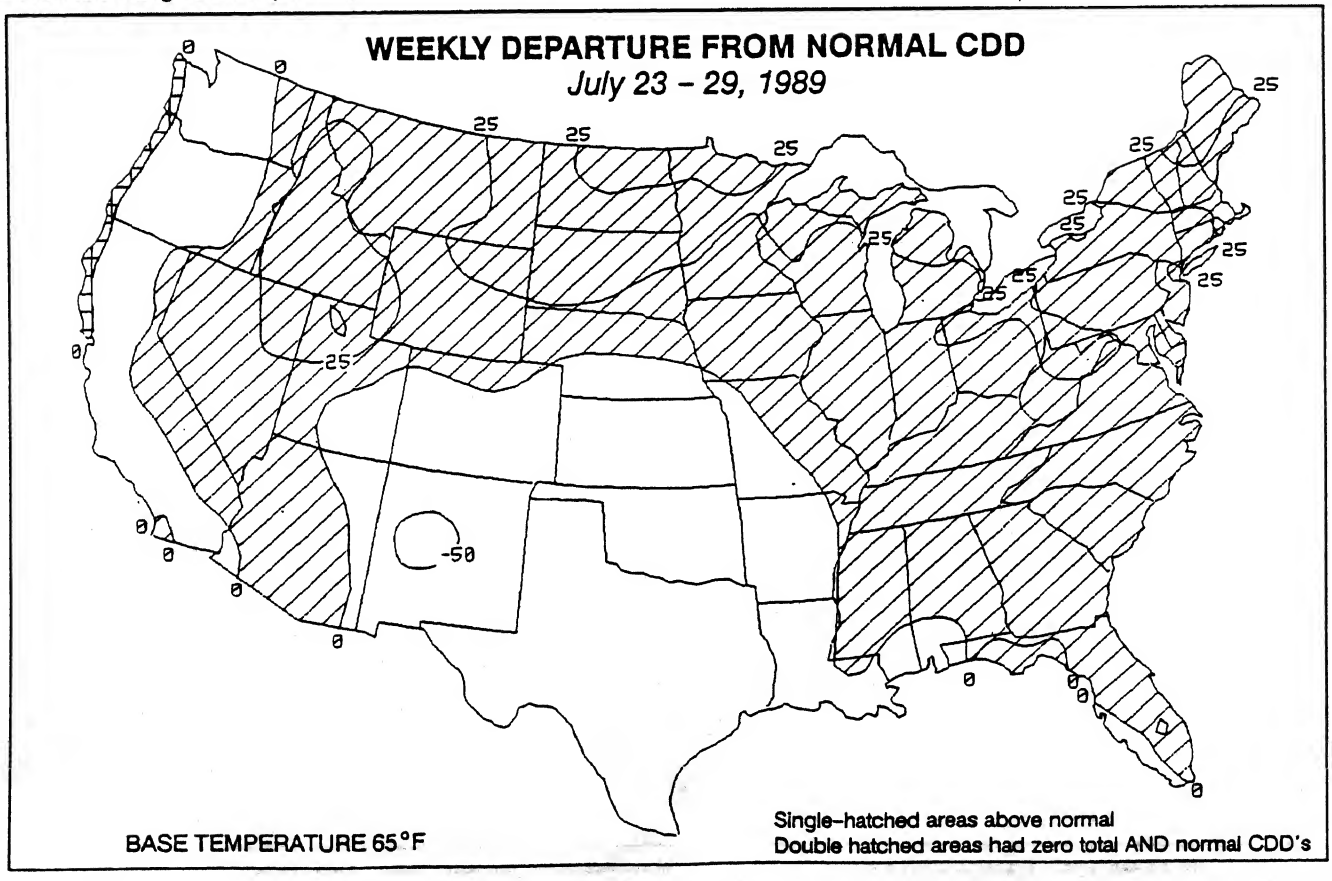




Highs exceeded 100°F in the desert Southwest, Great Basin, and scattered central Plains stations (top). Apparent temperatures greater than 100°F were found along the Mid-Atlantic states through the Gulf Coast, central Plains, southern Maine, and the desert Southwest (bottom).

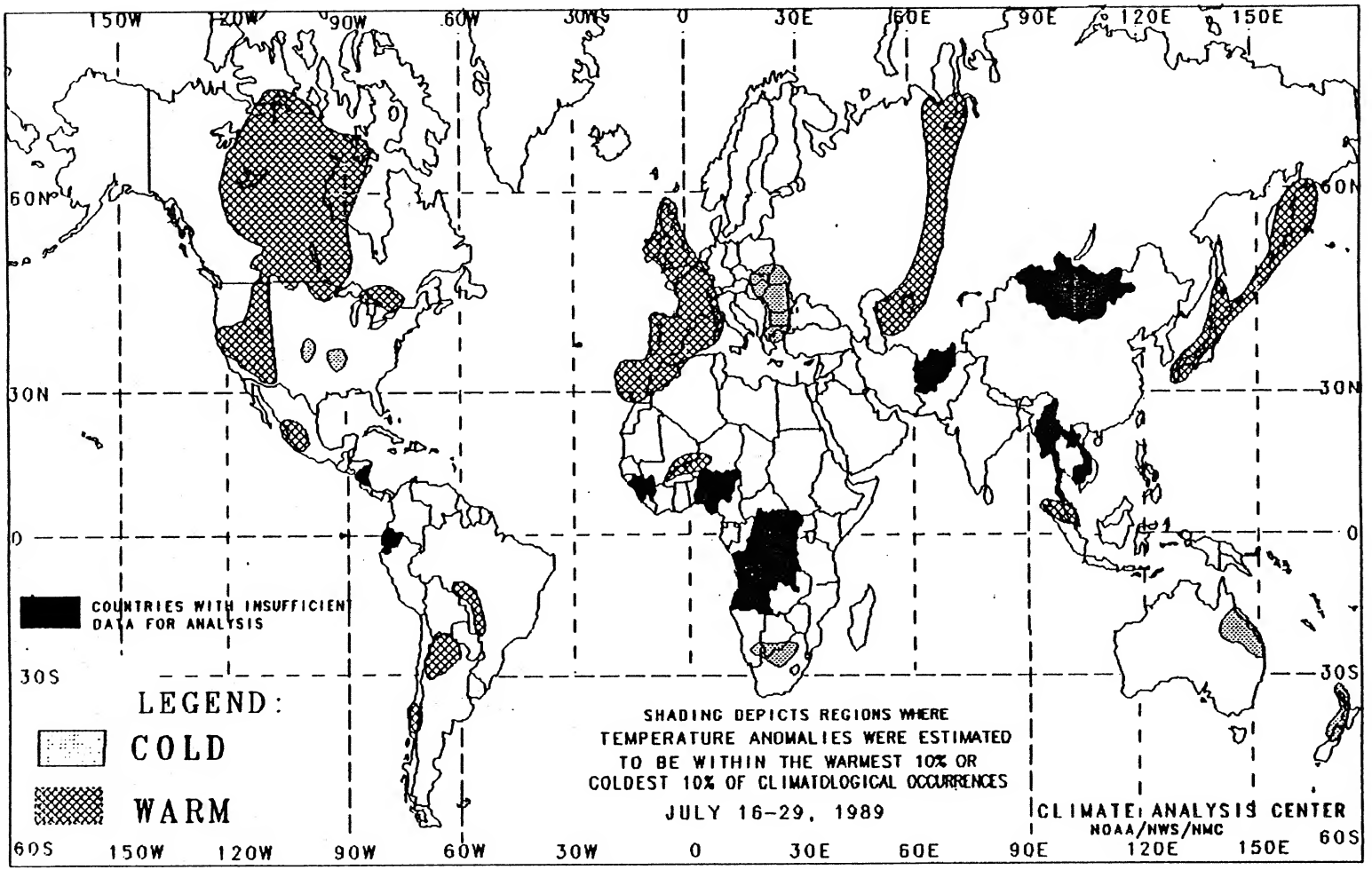


Weekly total CDD's above 100 prevailed along the Gulf and southern Atlantic Coasts and in the Great Basin, north-central Plains, and the desert Southwest (top). The eastern and northern halves of the nation and the Intermountain West experienced above normal cooling demand (bottom).



GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

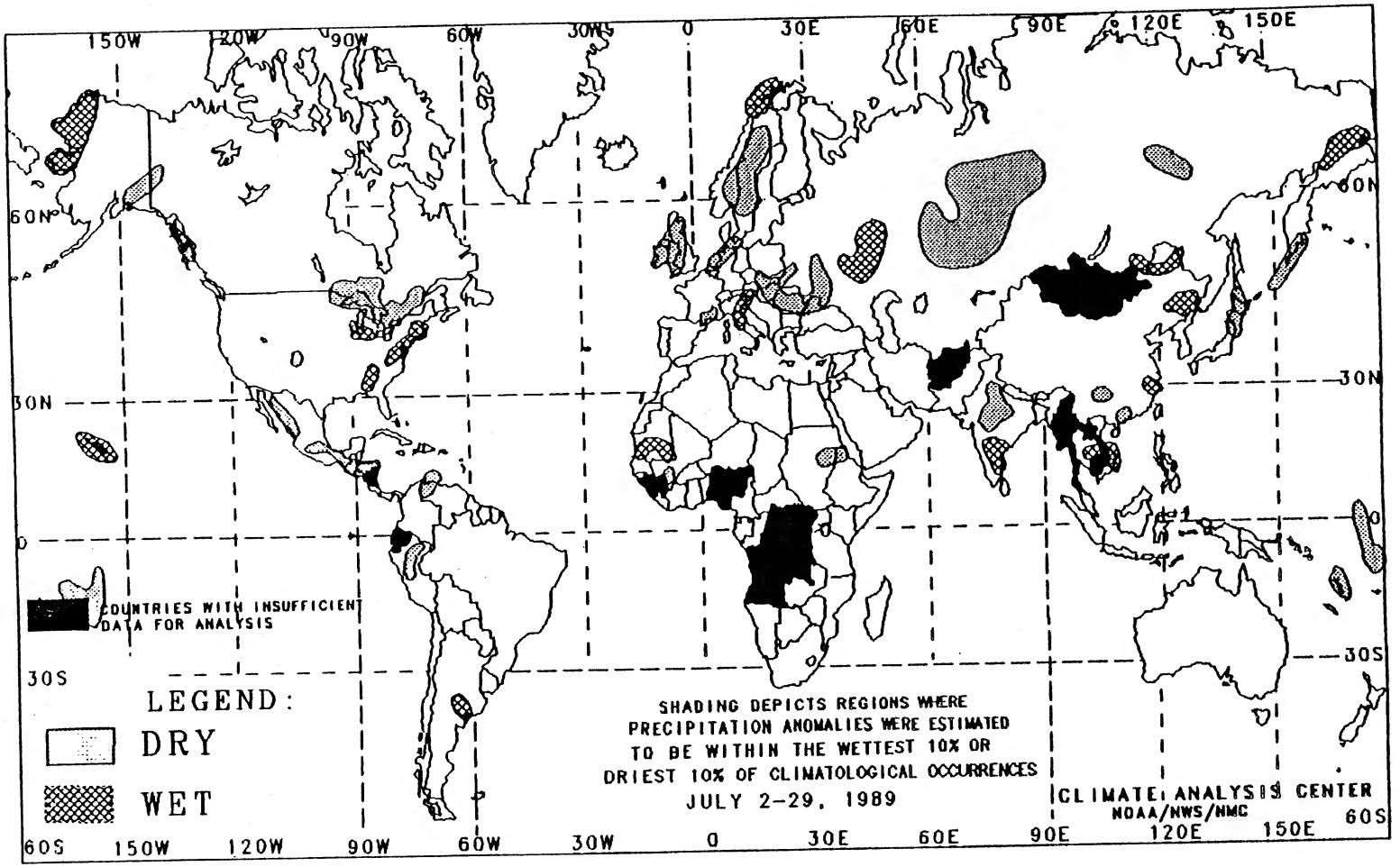
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

Climate Analysis Center, NMC
National Weather Service, NOAA

TORRENTIAL JULY RAINS HAVE CAUSED SEVERE FLOODING AND LANDSLIDES IN KOREA, SOUTHERN JAPAN, SOUTHEASTERN SIBERIA, AND IN PARTS OF CHINA

During the past few weeks, inundating rains have fallen on most of Korea, southern Japan, southeastern Siberia, and in northeastern, south-central, and southeastern China. Since July 9, over 200 mm of rain was recorded on Japan's southern island of Kyushu, throughout much of the Korean peninsula, in China's Jilin and Heilongjiang provinces (north of Korea), and in southeastern Siberia, while sections of Korea and Jilin province accumulated over 400 mm (see front cover). Only a few months ago, concerns were focused on severe long-term dryness and unseasonably warm conditions in northeastern China (known as Manchuria) and North Korea (see Weekly Climate Bulletin #89/21 dated May 27, 1989, pages 11- 12).

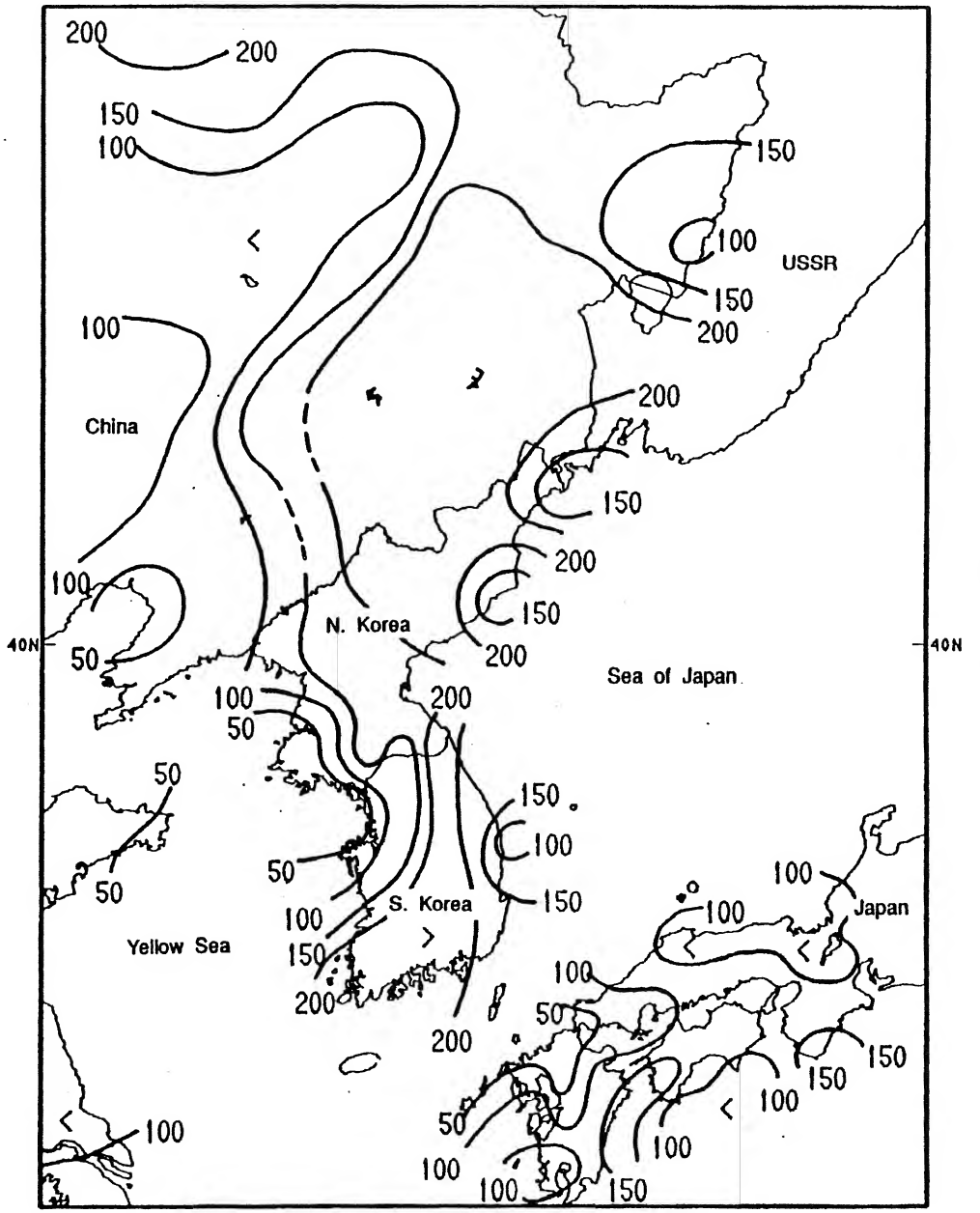


Figure 1. Percent of normal precipitation during July 9-29, 1989. Isopleths are only drawn for 50, 100, 150, and 200%. More than twice the normal precipitation fell during the past few weeks on portions of Korea, the Manchurian provinces of Jilin and Heilongjiang (north of Korea), and southeastern Siberia. The rainfall provided welcome relief from long-term dryness, but most of the rain fell during short time spans, causing severe flooding, landslides, extensive property damage, and loss of lives according to press reports.

Typhoon Judy and its remnants dumped significant precipitation on southern Japan, Korea, and the southeastern U.S.S.R. during July 27–29. The typhoon was preceded by heavy rains that occurred throughout the southern portions of the region during the week of July 9–15, while most of Manchuria and North Korea were soaked the following week. Even though the majority of the annual precipitation usually falls during the summer months, more than twice the normal rainfall (see Figure 1) and more than 200 mm of surplus precipitation (see Figure 2) were observed during the last few weeks in the Korean interior and in China's Jilin and Heilongjiang provinces. According to press reports, most of the rains occurred during short time spans, causing severe flooding, devastating landslides, and substantial losses of property and lives.

Farther south, portions of coastal China and Vietnam were battered by Typhoons Gordon, Hope, and Irving during the middle of the month (figures not shown). Typhoon Gordon, after slamming into the Philippines on July 15–16, made landfall in Guangdong province on July 18. During July 19–22, Typhoon Hope lashed the coasts of Zhejiang and Fujian provinces, while Typhoon Irving struck the northern Vietnam coast on July 23, the sixth typhoon to hit the country this year. The press reported that there was extensive property damage and numerous casualties in both countries from each storm. Early in the month, torrential downpours (between 300 and 400 mm) triggered landslides and caused rivers to overflow in eastern Sichuan province.

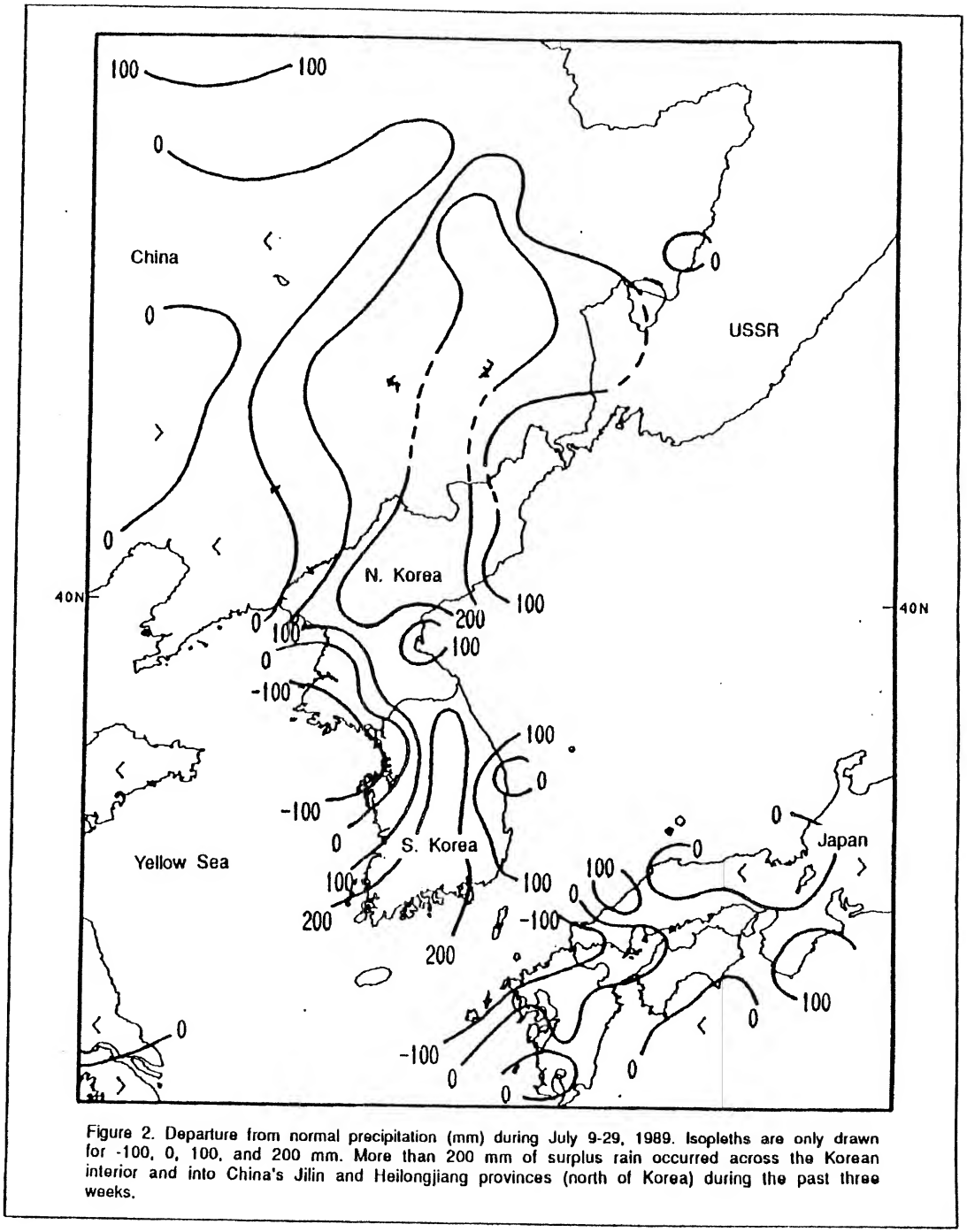


Figure 2. Departure from normal precipitation (mm) during July 9-29, 1989. Isopleths are only drawn for -100, 0, 100, and 200 mm. More than 200 mm of surplus rain occurred across the Korean interior and into China's Jilin and Heilongjiang provinces (north of Korea) during the past three weeks.